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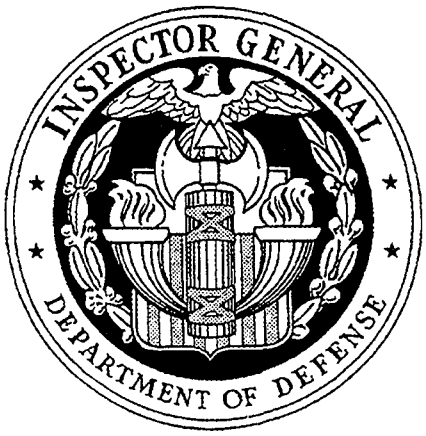

ACQUISITION MANAGEMENT OF THE COMPOSITE HEALTH CARE SYSTEM II AUTOMATED INFORMATION SYSTEM

Report Number 99-068 January 21, 1999

Office of the Inspector General
Department of Defense

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Acronyms

C3I	Command, Control, Communications and Intelligence
CHCS	Composite Health Care System
DISN	Defense Information Systems Network
OASD	Office of the Assistant Secretary of Defense

INSPECTOR GENERAL
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January 21, 1999

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (COMPTROLLER)
ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE)
ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)

SUBJECT: Audit Report on Acquisition Management of the Composite Health Care System II Automated Information System (Report No. 99-068)

We are providing this report for information and use. This is the first in a series of reports to be issued on the acquisition management of automated information systems. A consolidated response from the Offices of the Under Secretary of Defense (Comptroller), Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), and Assistant Secretary of Defense (Health Affairs) concurred with the report's results. Comments on a draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Charles M. Santoni at (703) 604-9051 (DSN 664-9051) (csantoni@dodig.osd.mil) or Mr. David M. Wyte at (703) 604-9027 (DSN 664-9027) (dwyte@dodig.osd.mil). See Appendix B for the report distribution. The audit team members are listed inside the back cover.

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Report No. 99-068 **January 21, 1999**
(Project No. 8AL-0028.00)

Acquisition Management of the Composite Health Care System II Automated Information System

Executive Summary

Introduction. This report is the first in a series on the acquisition management of major automated information systems. This report discusses the Office of the Assistant Secretary of Defense (Health Affairs) acquisition of the Composite Health Care System (CHCS) II. The CHCS II is a Category IAM automated information system acquisition. It is the target migration system for the Defense Health System's clinical business area with a projected life span of 18 years (FY 1997 through FY 2014). The CHCS II will provide health care providers and commanders worldwide access to read and record medically related data on beneficiaries' computer-based patient records. The Milestone II decision for CHCS II Increments 1 and 2 is planned for March 1999. Total program cost is estimated at $1.4 billion. Over an 18-year period, life-cycle cost estimates will approximate $5.0 billion (FY 1998 then-year dollars).

Objectives. The overall audit objective was to evaluate the acquisition management structure of selected major automated information systems. We selected the CHCS II acquisition because of its impact on the DoD health care mission and its projected life-cycle costs. We evaluated the CHCS II to determine whether the Office of the Assistant Secretary of Defense (Health Affairs) is developing the acquisition cost-effectively for the engineering and manufacturing development phase of the acquisition process. We also evaluated the effectiveness of the management control program as it applies to the audit objective.

Results. The Office of the Assistant Secretary of Defense (Health Affairs) has taken many positive actions to manage the acquisition of the complex CHCS II. However, further actions are needed to complete a project management system for the acquisition. A work breakdown structure linking financial accountability needs to be implemented to improve the Office of the Assistant Secretary of Defense (Health Affairs) ability to evaluate whether program results deviate from baseline parameters for cost, schedule, and performance and milestone decision authority exit criteria. In addition, the Office of the Assistant Secretary of Defense (Health Affairs) needs to provide funding visibility for the CHCS II acquisition. By combining the CHCS II funding with sustainment and modernization funding for the CHCS I and other clinical business area automated information systems, the program's funding visibility was limited.

The recommendations in this report, when implemented, will improve the effectiveness and efficiency of the CHCS II automated information system acquisition. See Appendix A for details on the management control program.

Summary of Recommendations. We recommend that:

- A project management control system be designed and implemented for the CHCS II that tracks and forecasts cost, schedule, performance, and exit parameter thresholds, and reconciles and validates results and conclusions derived from program documentation.
- Funding for the CHCS II automated information system be broken out to recognize it as a distinct program element that should be funded similar to an Acquisition Category II Major Weapons System Acquisition so that programmed funds will be made available to complete the required system acquisition within its planned life cycle.
- Milestone II exit criteria be provided for the CHCS II information technology acquisition that demonstrate level of performance, accomplishments, and progression.

Management Comments. The Offices of the Under Secretary of Defense (Comptroller), Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), and Assistant Secretary of Defense (Health Affairs) provided a consolidated response concurring with the report findings and recommendations. A discussion of management comments is in the Finding section of the report and the complete text is in the Management Comments section.

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Background

This report is the first in a series on the acquisition management of major automated information systems. The Composite Health Care System (CHCS) II is a Category IAM automated information system acquisition. It is the target migration system for the Defense Health System's clinical business area with a projected life span of 18 years (FY 1997 through FY 2014). Defined as a "system of systems," the CHCS II will support health care delivery to active duty members, retirees, and dependents and will support medical readiness assessments for military forces. Also, it will allow health care providers and commanders worldwide access to read and record medically related data on beneficiaries' computer-based patient records.

The Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) (OASD [C3I]) approved the CHCS II to pass through Milestone I in May 1998. An in-process review was held in September 1998 to review changes since the Milestone I review and to grant approval for selected Force Health Protection efforts. Milestone II approval for Increments 1 and 2, the Government Computer-based Patient Record, and Personal Information Carrier is planned for March 1999. Milestone II approvals for subsequent increments will be addressed at later in-process reviews. The acquisition implemented features of the Government Performance and Results Act, the Clinger-Cohen Act, the Federal Acquisition Streamlining Act, and the Paperwork Reduction Act. Total program cost is estimated at $1.4 billion. Over an 18-year period, life-cycle cost estimates will approximate $5.0 billion (FY 1998 then-year dollars).

When complete, the CHCS II system will incorporate most of the CHCS I system capabilities at medical treatment facilities. It will assimilate over 50 existing and interim automated health care information systems, and will replace and add new functions as it evolves. The CHCS II system will be a three-tiered information system connected by a network of client-server systems and will comply with Defense Information Infrastructure Common Operating Environment hardware and software. The CHCS II tiers will consist of a common workstation presentation, a clinically relevant database, and a variety of government-off-the-shelf and commercial-off-the-shelf health care software package applications.

The program office originally planned to deploy the CHCS II system in six increments; however, program realignment may reduce the number of deployed increments. Further, a key system integration challenge will be to develop middleware to interface differing components, Government- and commercial-off-the-shelf products, non-developmental items, and current software code and architecture.

CHCS II Increments 1 and 2 establish the foundation for the system acquisition and later increments will progressively increase system functions. The CHCS II Program Office, with contractor assistance, is developing and integrating Increment 1, which will be deployed to a limited number of health facilities. Also, the program office and contractor will develop and integrate Increment 2, and the Government Computer-based Patient Record prime contractor will implement and deploy the increment worldwide. Systems development, integration, and deployment will transition from DoD to a systems integration contractor for subsequent increments.

In FY 1995, Congress directed DoD to test regional network medical treatment facilities and develop computer-based patient records. CHCS II Increments 1 and 2 extend these tests to on-line applications.

Increment 1. Increment 1 provides initial CHCS II capability. It involves the integration of selected Government- and commercial-off-the-shelf products by interfacing the existing Military Health System communication infrastructure with the CHCS I system and the Ambulatory Data System legacy/interim migration systems. The development effort includes a large amount of new and modified software code to interface with the CHCS II application components. Participation of end-user representatives during requirement definition, design reviews, and test and evaluation was a key aspect of the development process.

As originally planned, Increment 1 would demonstrate interoperability among six Military Health System clinics at three host sites in the National Capital Area. Further, the Office of the Assistant Secretary of Defense (Health Affairs) (OASD [Health Affairs]) expected to deploy Increment 1 in October 1998 at an estimated cost of $30 million. However, because of budget realignments and technical delays, Increment 1 will be initially tested in Hawaii, with limited deployment beginning in the third quarter of FY 1999. The program office has not determined the development and deployment costs for this downsized effort.

Increment 2. Increment 2 provides the core baseline for the CHCS II. Most of its functions represent Government- and commercial-off-the-shelf products. By combining the Master Patient Index/Master Patient Locator, the Clinical Data Repository, the Lexicon database, and the pathfinder dental care application, health care providers will be able to exchange, display, and place data into beneficiaries' medical records from any host site. As originally planned at Milestone I, the OASD (Health Affairs) expected to deploy Increment 2 in March 1999, at an estimated cost of $90 million. Total costs to complete Increment 2 development and deployment are currently being revised to reflect the acquisition realignment.

The ASD (C3I) is the milestone decision authority for the CHCS II. The ASD (Health Affairs) is the principal staff assistant for the acquisition, and the Surgeon General of the Navy is the executive agent. The Deputy Surgeon General of the Navy is designated as the program executive officer. Program management for the CHCS II acquisition is assigned to the Clinical Business Area/CHCS II Program Office and administrative support is assigned to the TRICARE Management Activity. Also, multiple integrated product teams are involved with the management and review of the acquisition.

Objectives

The overall audit objective was to evaluate the acquisition management structure of selected major automated information systems. We reviewed the acquisition management structure for the CHCS II because it met the criteria of our selection process. Specifically, we determined whether the OASD (Health Affairs) is developing the acquisition cost-effectively for the engineering and manufacturing phase of the acquisition process. We also evaluated the management control program related to the objective. See Appendix A for a discussion of the audit scope and methodology and our review of the management control program.

Composite Health Care System II Program Management

Project management information on the acquisition of CHCS II Increments 1 and 2 was insufficient to determine whether program execution was within cost, schedule, performance, and exit criteria parameters. This condition occurred because the OASD (Health Affairs) and OASD (C3I) did not develop an effective process to achieve accountable project management for the CHCS II acquisition. Specifically, the OASD (Health Affairs) and the OASD (C3I) did not use acquisition program baselines for CHCS II. Instead, OASD (Health Affairs) managed the acquisition to an OASD(C3I) funding limitation. Further, a work breakdown structure linking financial accountability needs to be implemented to improve the OASD (Health Affairs)'s ability to evaluate whether program results deviate from baseline parameters for cost, schedule, and performance and milestone decision authority exit criteria. In addition, the CHCS II program funding visibility was limited by OASD (Health Affairs) when they combined CHCS II funding with sustainment and modernization funding for the CHCS I and other clinical business area automated information systems.

Mandatory Guidance

DoD Directive 5010.38, "Internal Management Control Program," August 1996, requires DoD managers to implement a comprehensive strategy for management controls that provides reasonable assurance that programs are efficiently and effectively carried out in accordance with applicable law and management policy and to evaluate the adequacy of those controls.

DoD Directive 5000.1, "Defense Acquisition," March 15, 1996, states that acquisition managers should implement rigorous internal management control systems for effective and accountable program management. Also, the Directive requires that managers at all levels shall make program stability a top priority and strive to ensure stable program funding throughout the program's life cycle after DoD initiates an acquisition program. DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition," requires that:

- Every acquisition program shall establish baselines to document the cost, schedule, and performance objective parameters beginning at program initiation. Material weaknesses are identified when program results deviate from approved acquisition program baseline parameters and exit criteria;

- Milestone decision authorities should use exit criteria to track progress in important technical, schedule, or management risk areas;

- Systems engineering processes should translate operational needs and/or requirements into system solutions;

- A program work breakdown structure should provide a framework for program and technical planning, cost estimating, resource allocations, performance measurements, and status reporting; and

- The DoD Component Head responsible for the program shall submit to the OASD (C3I) funding for the program contained in the Future Years Defense Plan most recently approved by the Secretary of Defense.

Project Management

The OASD (Health Affairs) and the OASD (C3I) did not develop an effective process to achieve accountable CHCS II system project management, because an earned value management information system had not been designed to measure cost, schedule, and performance with established baselines. Consequently, when the OASD (Health Affairs) obligated more than $70 million for the CHCS II in FYs 1997 and 1998, management could not readily determine whether program results deviated from baseline parameters and exit criteria. For the CHCS II concept exploration and program definition and risk reduction phases, the OASD (Health Affairs) and the OASD (C3I) did not establish systems engineering work breakdown structures that can be used to:

- translate CHCS II operational requirements to system solutions,

- develop baselines for measuring efficiency, effectiveness, and program results, and

- apply benefits and verify results and conclusions of program documentation.

Requirements to System Solutions. The CHCS II Program Office did not translate operational requirements to system solutions using systems engineering work breakdown structures for CHCS II Increments 1 and 2. The work breakdown structure diagram configures hardware and software items to their lowest assembled units of work. At each level, work breakdown locators should be assigned to identifiable components to link technical development, production, logistics support, and program management with financial accountability. A work breakdown structure traces system operational requirements from product design to logistics support and also provides links for assigning costs, phasing work, determining progress, and projecting results.

Elements necessary for measuring CHCS II system management accountability did not exist. Management could not measure performance results for Increments 1 and 2 because it had not established baselines for determining progress and projecting results. A systems engineering work breakdown structure was not in place that could be used to determine or project cost, schedule, performance and exit criteria parameters, or whether trend analysis projections indicated deviations from planned baselines. Instead of using a work breakdown structure for Increments 1 and 2, the OASD (Health Affairs) used a timeline for scheduling and tracking events and assigning work commitments. Because cost estimations and applied costs were not posted to the timeline, CHCS II cost deviations would not surface as comparison results between baseline estimates; therefore, applied costs could not be determined or projected.

Baseline Documentation. The OASD (Health Affairs) and the OASD (C3I) did not use acquisition program baselines for CHCS II. Instead, OASD (Health Affairs) managed the acquisition to an OASD (C3I) funding limitation. Although the CHCS II system had transitioned from Milestone 0 to Milestone I in May 1998, baseline comparative criteria for measuring and evaluating technical and financial progress was not established. CHCS II's acquisition baseline approval was deferred to Milestone II. Further, the OASD (C3I) exit criteria for CHCS II for Milestones 0 and I did not provide definitive guidance for tracking progress in important technical, schedule, and management risk areas.

Approved Acquisition Baseline. The Program Office prepared a draft acquisition program baseline for the acquisition's Increments 1 and 2 Milestone I review. However, because of cost and schedule uncertainties, program structure tailoring allowed the Overarching Integrated Product Team to defer approval until Milestone II.

The CHCS II Program Office developed draft acquisition program baseline costs from a modeling application and depends on the quality of the modeling applications rather than costs derived from engineering performance standards and applied rates. As a sensitivity check, modeling validates results that can be used for correcting and adjusting engineering processes and estimating assumptions. However, modeling does not substitute for cost determinations derived from traceable engineered solutions. Further, models require certification from recognized independent verification and validation resources. Because there is no work breakdown structure, the program office will apply actual and estimated costs to non-certified modeling algorithms for determining life-cycle cost estimates for all CHCS II Increments.

Validation of Cost Modeling Results. The OASD (Health Affairs) and the OASD (C3I) recognized the CHCS II technical challenge of integrating and blending technologies developed by numerous Government and commercial sources. As a risk-mitigation action, they obtained additional CHCS II information to verify its cost modeling results. The results confirmed that the CHCS II Increments 2 through 6 were large software integration projects, and that the range of derived life-cycle costs could vary, depending on the middleware required to interface with the evolved application modules. Also, the program office engaged the Naval Center for Cost Analysis to review and evaluate its life-cycle cost determinations.

Despite the quality of the modeled life-cycle cost estimates and the cost variances for off-the-shelf applications, the CHCS II system was constrained by the process used by the OASD (Health Affairs) to fund automated information systems. The CHCS II acquisition program baseline parameters for cost, schedule, and performance will be sized to available funds rather than tailored to engineered system solutions or modeled life-cycle cost estimates. (See Funding.)

Exit Criteria. The OASD (C3I) milestone decision exit criteria for the CHCS II did not address program advancement. Specifically, the exit criteria did not provide sufficient objective guidance for the OASD (Health Affairs) to demonstrate that the CHCS II acquisition was on track and should continue within an acquisition phase or be allowed into the next acquisition phase. The CHCS II system exit criteria did not require a demonstration of a level of performance, efficiency, or progress. The OASD (C3I) exit criteria requested program documentation, granted approvals, or listed events for assessing readiness before approving actions. The exit criteria did not address completion of milestone events such as preliminary and critical decision reviews, interface documents, test readiness reports, and tests completion.

The OASD (C3I) granted Milestone 0 in January 1997. As well as discussing the mission needs statement and mentioning Major Automated Information System Review Council briefings, the document addressed integrated product teams and incremental development of the acquisition. The Milestone 0 approval document did not address performance, efficiency and progress. It also did not address important technical, schedule, or management risk areas.

An Acquisition Decision Memorandum dated February 1998 acknowledged the Milestone 0 approval document and stated that current planning, modeling, simulation, and demonstration activities were authorized. The Acquisition Decision Memorandum also granted approvals for alpha test sites and prototype demonstrations and listed documents required for the next in-process review. In addition, the Acquisition Decision Memorandum placed a funding cap on new CHCS II system acquisition efforts at $37 million. A subsequent Acquisition Decision Memorandum raised the cap to $41 million.

The OASD (C3I) representative signed the Milestone I Acquisition Decision Memorandum, dated May 18, 1998, which approved a release for proposal, addressed the agenda of issues for the next in-process review, and listed the documents required before the next in-process review. Consistent with the Milestone 0 approval and the Acquisition Decision Memorandum, the Milestone I Acquisition Decision Memorandum did not address performance, efficiency and progress. It also did not address important technical, schedule, or management risk areas.

Risk Management. The OASD (Health Affairs) has an active CHCS II system risk management program. However, the quality of the program could not be determined because there was no work breakdown structure; risk-mitigating actions did not link to CHCS II Increments 1 and 2 for tracking effects; and some of the identified risks being tracked were unrelated to the CHCS II acquisition. Because of the lack of a work breakdown structure the CHCS II acquisition is unable to benefit from Government- and commercial-off-the-shelf risk management products for handling potential cost, schedule and performance problems.

Tracking Mitigating Actions. The Clinical Business Area/CHCS II System Program Office tracked risks and mitigating actions using a numbering system unrelated to work breakdown structure. Also, the program office reduced the assessed impact of risks when mitigation plans were in place rather than waiting for results.

For the CHCS II Increment 1 acquisition, the Clinical Business Area/CHCS II downgraded a risk described as "Lots of pieces may not play together as a result of systems being developed outside of the CHCS II Program." The Office of the Clinical Business Area/CHCS II reduced the risk's priority from a 1 to a 3 when it issued the CHCS II system integration plan for Government- and commercial-off-the-shelf products. Integrating these products is the key challenge of the CHCS II acquisition, and recognizing the system integration plan was a mitigating action that depended on how the action affected results. The system integration plan needed to be linked and tracked to the increment's development and deployment work breakdown structure for it to benefit the CHCS II acquisition.

Systemic Risks. Not all identified risks specifically related to the CHCS II acquisition. For example, the Clinical Business Area/CHCS II Program Office addressed risks for disaster recovery planning, measuring contractor's performance, year 2000 compliance, estimating contractor's labor rates, and for controlling other redundant systems from being developed. These systemic risks affect the quality of all OASD (Health Affairs) information technology acquisitions.

Risk-Management Products. Without a systems engineering work breakdown structure, the OASD (Health Affairs) could not utilize Government- and commercial-off-the-shelf risk management products for the CHCS II system. Users' processes must be compatible with the software products to evaluate risks and project the effects of mitigating actions. To accommodate many of these products, data inputs must be linked to the work breakdown structure.

Contracting. Delivery orders awarded to contractors for CHCS II Increments 1 and 2 could not be linked to systems engineering management plans or work breakdown structures to determine where they fit in the development and deployment process. Orders placed against indefinite delivery and indefinite quantity tasks requested a variety of services, and prices for ordered services were not subdivided but priced as a single unit. Further, it was difficult to determine whether the orders were within descriptive scopes of the contracted tasks because contracting officers modified orders to increase costs, levels of effort, and periods of performance. The CHCS II Program Office directed the issue of seven delivery orders totaling $30 million for FY 1998 CHCS II effort.

During FY 1998, the OASD (Health Affairs) recompeted the Defense Medical Information System/Systems Integration, Design, Development, Operations and Maintenance Service and the Program Management Integration contracts. The new multiple-source contracts will allow for competitive awards to vendors. In addition, the program office has tasked a Federal System Integration and Management Center contractor to complete CHCS II Increments 1 and 2. The program office will rely on the contractor's project management system to monitor the acquisition's cost, schedule, and performance results.

Program Documentation

CHCS II program documentation cannot be reconciled and validated. Because there was no work breakdown structure, the program office did not link development and deployment documentation to configured hardware and software solutions and did not use configured hardware and software solutions to validate program documentation. For this reason, we could not measure the quality or benefits of CHCS II program documentation. By applying work breakdown structures to the CHCS II system, management could have linked benefits of CHCS II documented products to configured or validated results, and conclusions of unrelated data.

Mission Needs Statement. The CHCS II mission needs statement requires an improved material solution for the OASD (Health Affairs) to enhance operational capabilities. The existing clinical business area automated information systems need to be replaced with systems that will provide an orderly transition. The mission needs statement added specific requirements and conditions that affected configuration management, integrated logistics support, and security, and established performance levels for the system configuration and the work breakdown structure. However, without a work breakdown structure, linkage does not exist between the mission needs statement and the improved material solution.

Operational Requirements Document. The CHCS II operational requirements document built on the mission needs statement by defining system performance and functional capabilities. The CHCS II automated information system should result in an electronic health care record that is comprehensive, confidential, paperless, and filmless. It should enable rapid access and transfer through telecommunications for worldwide regional and remote medical intervention. In addition, the electronic health record must be able to obtain, store, and transmit computerized information about the status and care of eligible military beneficiaries. The combined mission needs statement and operational requirements document defined a three-tiered information system to electronically access, process, and store medical data for beneficiaries entitled to DoD care. The operational requirements document defined the top-level technical solution for the delivered system configuration. However, without a work breakdown structure, linkage does not exist between the system performance and functional capabilities defined in the operational requirements document and the improved material solution.

Test and Evaluation Master Plan. The OASD (Health Affairs) developed a well-documented CHCS II system test-and-evaluation master plan that addressed developmental, technical, and functional characteristics and operational total system characteristics. The master plan outlined schedules, delineated responsibilities, and identified resources. Test plans developed from the master plan will demonstrate developmental test and evaluation or operational test and evaluation capabilities. However, because a work breakdown structure did not exist to link the planned tests and resources required to perform them, the quality of the master plan's execution cannot be determined. Because baselines for evaluating program results do not exist, effectiveness and efficiency cannot be measured.

Economic Analyses. The CHCS II Program Office, in its economic analysis, considered return-on-investment when selecting the preferred alternative from the CHCS II mission options. However, the CHCS II Program Office cannot validate the life-cycle costs estimated for the preferred alternative.

The program office derived the cost estimates from actual costs for Increments 1 and 2 and cost models, but, because projections depended on confidence levels placed on modeling assumptions, the preferred CHCS II alternative may not be cost-effective. Without a work breakdown structure, cost estimates cannot be reconciled with estimates developed from an iterative systems engineered process, inaccuracies resulting from flawed assumptions cannot be detected, and acquisition costs could exceed estimates and affect the anticipated CHCS II benefits. When the program office computed returns-on-investment for alternative solutions, it did not disclose the possible extent of modeling inaccuracies that could affect the CHCS II computed return-on-investment of 13.6 percent.

Configuration Management. Without a work breakdown structure for configuration management, the OASD (Health Affairs) will apply unique tracking numbers to CHCS II configured items that do not link to technical and project management processes. By relating work breakdown structures to technical efforts, contract statements of work, and line item development, management can control configuration changes and costs, manage risks, and combine operations compatibility, operability and sustainability after product deliveries. Further, without a work breakdown structure, the OASD (Health Affairs) may have insufficient information to sustain technical challenges when program management responsibility is transferred to a prime contractor after Increment 2.

Funding

When the OASD (Health Affairs) combined CHCS II funding with sustainment and modernization funding for the CHCS I and other clinical business area automated information systems, CHCS II program funding visibility was limited. Because the CHCS II does not have an identified funding line for programming and budget execution, the OASD (C3I) cannot be assured that acquisition program baseline funding for CHCS II acquisition will be contained in the Future Years Defense Plan most recently approved by the Secretary of Defense.

Resourcing Programs. Because available funds were insufficient for all planned Clinical Business Area/CHCS II information technology programs, the OASD (Health Affairs) had to prioritize requirements. As a result, the FY 1998 budget requirements to execute, sustain, or modify current information systems and special interest acquisitions received precedence over the CHCS II, which was programmed for $56 million. The following table demonstrates that mission priorities, combined with congressional and OASD (Health Affairs) adjustments, provided $41 million for the FY 1998 CHCS II acquisition ($30 million for Increments 1 and 2, and $11 million for other subsystems of CHCS II.)

		(Million)
The OASD (Health Affairs) target		$258
Minus:		
Sustainment and modifications for current clinical business area information systems	$202	
Congressional budget CHCS II reductions	18	
OASD (Health Affairs) CHCS II reductions	18	238
Subtotal		**20**
Plus:		
FY-98 Congressional plus-up	17	
OASD (Health Affairs) plus-up	4	21
Total CHCS II Funding for FY 1998		**$41**

However, funds budgeted for sustainment and modification of current and interim information systems were obligated for the CHCS II acquisition. Therefore, in addition to the $30 million budgeted for Increments 1 and 2 of the CHCS II acquisition, approximately $3 million was obligated from the current and interim information systems for CHCS II program management support. As a result, the acquisition program baseline effectively became a derived baseline of $44 million, rather than the acquisition decision memorandum baseline cap of $41 million.

Program Visibility. The CHCS II acquisition lost program visibility when the OASD (Health Affairs) commingled funds to resource Clinical Business Area/ CHCS II information technology programs. Unlike similarly costed weapons system acquisitions that would qualify as Acquisition Category II programs, the CHCS II is not identified to a funding line for programming and budget execution. As a result of this loss of funding visibility, the Military Health System's acquisition portfolio, program and budget presentations do not reflect that the CHCS II acquisition was reduced from $56 million to $41 million. Since the CHCS II acquisition is forced to compete with other the OASD (Health Affairs) Clinical Business Area systems for resources with a derived acquisition program baseline that is incomplete, stable program funding cannot be assured throughout the program's 18-year life cycle. From FY 1999 through FY 2004, the OASD (Health Affairs) has programmed $921 million (then-year dollars) to acquire the CHCS II information system and $316 million (then-year dollars) to sustain and modify it.

Extending the Acquisition's Life Cycle. Extending the CHCS II system life cycle beyond FY 2014 because of inadequate resourcing may not be acceptable. If the OASD (Health Affairs) cannot sustain planned funding, deployed CHCS II infrastructure and software may need to be replaced before the end of the program's life-cycle. Because of outdated technology, additional funding may be required to maintain the CHCS II with state-of-the-practice technology. Further, additional CHCS II life-cycle funding could stress the acquisition's estimated return on investment. With a return on investment estimated at 13.6 percent, insufficient life-cycle funding may justify reevaluation and replacement of the acquisition.

Conclusion

Although a substantial amount of program documentation had been created to justify and support the acquisition, the OASD (Health Affairs) and the OASD (C3I) did not develop an effective process to achieve accountable CHCS II project management. Without work breakdown structures linking technical development, production, logistics support, and project management with financial accountability for Increments 1 and 2, the OASD (Health Affairs) and the OASD (C3I) could not determine the following information:

- whether cost, schedule, performance and exit criteria baseline parameters had been obtained or breached,
- whether trend analysis projections indicated deviations from planned baselines, and
- whether results and conclusions of the program documentation were valid and benefited the acquisition.

In addition, the inability of the OASD (Health Affairs) to sustain CHCS II development and deployment funding may delay the acquisition and increase its cost.

Recommendations and Management Comments

1. We recommend that the Office of the Assistant Secretary of Defense (Health Affairs) implement a management process that:

a. Applies systems engineering work breakdown structures for tracking and forecasting cost, schedule, performance and exit parameter thresholds.

b. Reconciles and validates results and conclusions derived from program documentation to work breakdown structure processes and products.

c. Breaks out funding for the CHCS II automated information system by recognizing the acquisition as an entity that should be funded similarly to a Category II major weapons system acquisition.

2. We recommend that the Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) provide Milestone II exit criteria for the CHCS II information technology acquisition that require:

a. performance levels,

b. efficiency levels, or

c. satisfactory progress indicators.

3. We recommend that the Office of the Under Secretary Defense (Comptroller), verify that the Office of the Assistant Secretary of Defense (Health Affairs) has recognized the CHCS II as a distinct program element and has programmed funds to complete the automated information system acquisition within its planned life cycle.

Management Comments. The Offices of the Under Secretary of Defense (Comptroller), Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), and Assistant Secretary of Defense (Health Affairs) provided a consolidated response concurring with the report findings and recommendations. Management agreed to:

- adopt a standard military health system work breakdown structure by the end of the first quarter of fiscal year 1999,
- provide meaningful exit criteria in further acquisition decision memorandums, and
- provide funding visibility by addressing the CHCS II acquisition funding separately from other clinical business area funding.

The complete text of management comments is in the Management Comments section.

Appendix A. Audit Process

Scope and Methodology

We conducted the program audit from March through September 1998 and reviewed documentation dated from January 1997 through June 1998. To accomplish the audit objective, we:

- reviewed CHCS II acquisition documents covering program requirements, program definition, contracting, program assessments and decision reviews, and periodic reporting;
- obtained and reviewed task statements for ongoing and pending contracts;
- reviewed FY 1998 appropriation funding and budget-execution reports;
- interviewed and obtained documentation from the Offices of the Under Secretary of Defense (Comptroller), the OASD (Health Affairs), the OASD (Command, Control, Communications and Intelligence), the Naval Center for Cost Analysis, and the CHCS II Program to address program management and oversight; and
- interviewed functional area experts from the Office of Management and Budget, the General Accounting Office, the General Services Administration Federal Systems Integration and Management Office, and the Defense Systems Management College for information on public laws, guidance, policy, and challenges peculiar to the acquisition of automated information systems.

CHCS II Selection Process. We identified the major automated information systems for which the OASD (C3I) retained decision authority, and submitted FY 1999 budget data using the Capital Asset Plans and Justification Report (300b Report). We then eliminated systems that provided only an environment for other systems to operate on and systems with recent or ongoing audit activity. We interviewed cognizant personnel and reviewed system documentation, 300b Reports, and Program Objective Memorandums for the remaining six systems and selected the CHCS II acquisition program based on the scope of its mission and the cost of the program.

Audit Standards. We conducted this program audit in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Accordingly, we included such tests of management controls as we considered necessary.

Use of Computer-Processed Data and Technical Experts. We did not rely on computer-processed data or statistical sampling procedures to perform the audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD, the Office of Management and Budget, and the General Accounting Office. Further details are available upon request.

DoD-wide Corporate Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, DoD has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting these objectives. This report pertains to achievement of the following objective and goal:

- **Objective:** Fundamentally reengineer DoD and achieve a 21st century infrastructure.
- **Goal:** Reduce costs while maintaining required military capabilities across all DoD mission areas. **(DoD-6)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals:

- **Information Technology Management Functional Area.** **Objective.** Reform information technology management processes to increase efficiency and mission contribution. **Goal**: Institutionalize provisions of the Information Technology Management Reform Act of 1996. **(ITM 3.1)**
- **Information Technology Management Functional Area.** **Objective.** Reform information technology management processes to increase efficiency and mission contribution. **Goal:** Institute fundamental information technology management reforms. **(ITM 3.2)**
- **Health Care Functional Area.** **Objective.** Technology integration. **Goal.** Plan, procure, install, and maintain technologies to provide cost beneficial solutions to meet improved military health services system requirements. **(MHS-5.2)**

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Defense Information Management and Technology high-risk area.

Management Control Program Review

DoD Directive 5010.38 requires DoD managers to implement a comprehensive strategy for management controls that provides reasonable assurance that programs are efficiently and effectively carried out in accordance with applicable law and management policy and to evaluate the adequacy of those controls.

Scope of Review of the Management Control Program. The Under Secretary of Defense for Acquisition and Technology integrated DoD Directive 5010.38 requirements into the March 15, 1996, revision to DoD Directive 5000.1, "Defense Acquisition" and DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs." Acquisition managers are to use program cost, schedule, and performance parameters as control objectives to implement the DoD Directive 5010.38 requirements. Managers are to identify material weaknesses through deviations from approved acquisition program baselines and exit criteria. Accordingly, we limited our review to management controls related to the acquisition of the CHCS II.

Adequacy of the Management Control Program. We identified material management control weaknesses, as defined by DoD Directive 5010.38, in that the OASD (Health Affairs) and the OASD (C3I) did not develop an information system that tracked program cost, schedule, and performance parameters before the OASD (Health Affairs) obligated funds to develop and deploy CHCS II. Specifically, the OASD (C3I) allowed the program to proceed through milestones and in-process reviews without requiring fully supported cost, schedule, and performance parameters as control objectives. Without supportable cost, schedule, and performance parameters to establish effective control objectives and baselines to measure deviations, an effective management control program cannot be implemented. If implemented, Recommendations 1.a., 1.b., and 2. will correct the identified weaknesses. We will provide a copy of this report to the senior official responsible for management controls in the Offices of the OASD (Health Affairs) and the OASD (C3I).

Summary of Prior Coverage

During the last 5 years, no audits have been performed on the CHCS II automated information system.

Appendix B. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
  Director, Program Analysis and Evaluation
Assistant Secretary of Defense (Command, Control, Communications and Intelligence)
Assistant Secretary of Defense (Health Affairs)
  Program Manager, Composite Health Care System II Program Office
Assistant Secretary of Defense (Public Affairs)
Director, Defense Logistics Studies Information Exchange

Department of the Army

Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy
Program Executive Officer, Composite Health Care System II
Superintendent, Naval Postgraduate School, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force

Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Director, National Security Agency
  Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
General Accounting Office
  National Security and International Affairs Division
    Technical Information Center

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology, Committee on Government Reform
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform
House Committee on Armed Services

Office of the Secretary of Defense Comments

OFFICE OF THE SECRETARY OF DEFENSE

WASHINGTON, DC 20301

MEMORANDUM FOR DIRECTOR, ACQUISITION MANAGEMENT DIRECTORATE

SUBJECT: Audit Report on Acquisition Management of the Composite Health Care System II Automated Information System (Project No. 8AL-0028.00)

The Offices of the Under Secretary of Defense (Comptroller) (USD(C)), Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (ASD(C3I)), and Assistant Secretary of Defense (Health Affairs) (ASD(HA)) have analyzed the draft subject report and provide a consolidated response to each finding and applicable recommendation below.

Audit Finding 1: A project management control system needs to be designed and implemented for the Composite Health Care System (CHCS) II that tracks and forecasts cost, schedule, performance, and exit parameter thresholds and reconciles and validates results and conclusions derived from program documentation.

Audit Recommendation: The Office of ASD(HA) (OASD(HA)) implement a management process that:

- Applies systems engineering work breakdown structures (WBSs) for tracking and forecasting cost, schedule, performance and exit parameter thresholds; and
- Reconciles and validates results and conclusions derived from program documentation to WBS processes and products.

Response: Concur - The OASD(HA) will adopt a standard Military Health System (MHS) WBS framework by the end of second quarter FY 1999. We concur that a program WBS provides a framework for managing program progress. The OASD(HA) has specified the use of an earned value management process and WBS. An MHS WBS framework has been developed for contract work under the new Defense Medical Information System/Systems Integration Design, Development, Operations, and Maintenance Services (D/SIDDOMS) II contract and for possible use with other contract vehicles. The CHCS II Program Office will phase a WBS into use as it migrates existing work to this new contract and for other appropriate contracts by the end of FY 1999.

Audit Finding 2: Milestone II exit criteria need to be provided for the CHCS II information technology acquisition that demonstrate level of performance, accomplishments, and progression.

Audit Recommendation: The Office of ASD(C3I) (OASD(C3I)) provides Milestone II exit criteria for the CHCS II information technology acquisition that requires:

- Demonstration of performance levels,
- Accomplishments at levels of efficiency, or
- Accomplishments that indicate acquisition events are progressing satisfactorily.

Response: Concur - Future acquisition decision memorandums (ADMs) will continue to thoroughly address exit criteria and, to the extent required, provide rationale for exceptional tailoring. We concur that meaningful exit criteria need to be provided, as prescribed by DoDD 5000.1 and DoD 5000.2-R. The practice of allowing deviation from standard acquisition requirements is a major theme of the acquisition directives. Each ADM issued for CHCS II contains explicit exit criteria required by the acquisition directives and recommended by members of the working-level integrated product team (WIPT).

Audit Finding 3: Funding for the CHCS II automated information system (AIS) needs to be broken out to recognize it as a distinct program element that should be funded similar to an Acquisition Category II major weapons system acquisition so that programmed funds will be made available to complete the required acquisition within its planned life cycle.

Audit Recommendation: The OASD(HA) break out funding for the CHCS II AIS with a distinct program element to recognize the acquisition as an entity that should be funded similarly to a Category II major weapons system acquisition. Additionally, the Office of USD(C) verify that the OASD(HA) has recognized the CHCS II as a distinct program element and has programmed funds to complete the AIS acquisition within its planned life cycle.

Response: Partially Concur - We concur with the recommendation that funding for the CHCS II acquisition should be more visible. We propose to provide this visibility by separately addressing the CHCS II acquisition funding from other Clinical Business Area funding within the CHCS II 300 B exhibit instead of establishing a distinct program element. This approach will provide a separate and unique CHCS II acquisition program funding identity, while enabling the MHS to continue business area and enterprise portfolio management.

The material management control weakness, discussed in Appendix A of this audit report, has been addressed with the implementation of the WBS as discussed above. In addition, an acquisition program baseline will be required before Milestone II approval.

Specific comments that address recommended corrections in the audit report have been provided under separate cover.

for Marvin J. Langston
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Office of the Assistant Secretary of Defense (Health Affairs)

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